United States Department of the Interior
Bureau of Land Management
Royal Gorge Field Office
3028 E. Main Street
Cañon City, CO 81212

Environmental Assessment

Hopemore Mine Plan of Operations

DOI-BLM-CO-200-2013-0066 EA

June, 2014

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CHAPTER 1 - INTRODUCTION

1.1 IDENTIFYING INFORMATION

CASEFILE/PROJECT NUMBER (optional): COC73931

PROJECT TITLE: Hopemore Mine

PLANNING UNIT: Arkansas River Subregion #1

LEGAL DESCRIPTION: 6th Principle Meridian, T. 09 S., R. 079 W., Sec. 20, SE ¼ , SE ¼

APLLICANT: Lockland LLC
902 E. 6th St.
Leadville, CO 80461

1.2 INTRODUCTION AND BACKGROUND

BACKGROUND: This EA has been prepared by the BLM to analyze the mining and tourism operations at the Hopemore Mine in Leadville, Colorado. The Ibex mines located in the Leadville Mining District began operations in 1902. The Hopemore shaft was sunk in 1907 to reach the 7th level of the Ibex No.4 Mine. Ore bodies in the Leadville Limestone lie on the hanging wall side (southwest) of the Ibex No.4 vein. The Leadville Limestone on the footwall (east) side of the Ibex No. 4 vein was mined via the Hunter Shaft. Historically, each of these mines was worked separately and ore was taken off site for processing. The mine operated through 1916. Since then periodic operations have removed primarily gold and iron ores. Leadville Mining and Milling, a Delaware corporation, located local claims and developed the area in the early 1960's. In 1984, Leadville Mining and Milling performed development work on the Hopemore Shaft. Work included re-timbering of the entire Hopemore shaft, establishment of the new 7th level by sinking the shaft to a depth greater than 700 feet, partial rehabilitation of the other levels, several raises, connection of the 5th level with the Hunter shaft, and re-timbering of the Hunter escape shaft. Later the corporation switched names to Capitol Gold, a Nevada corporation. In 1994, the corporation gave up claim to the area as a result of unknown complications. Robert Calder took ownership of the area in the early 2000's. Mr. Calder started Lockland, LLC in 2004 - the company that operates the Hopemore Shaft today. Hopemore has operated solely as a tourist mine since 2008 under Colorado Division of Reclamation, Mining and Safety (CDRMS) tourist mine regulations. The Hopemore shaft was filed with CDRMS as a component of Calais Resources Colorado, Inc. (M1990057). During 2011 and 2012, Lockland, LLC rehabilitated the hoist, cage and compressors, constructed board walks, parking and viewing decks, implemented a weed control plan, and conducted other extensive care and maintenance to site, mine, and facilities at the Hopemore Shaft. Calais Resources Colorado, Inc. and Lockland, LLC separated in April 2013. Permitting under CDRMS, Mine Safety and Health Administration (MSHA), BLM, Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), Colorado Department of Public Health and Environment (CDPHE), etc. for active mining in the Hopemore and Hunter shafts was initiated in May 2013. Mining operations are expected to begin in 2014 while tourist operations continue. For public safety, mining will not occur while tours are being conducted.

An application for patent on the Comstock Lode, where the Hopemore Shaft is located, was filed and later challenged. The challenge was never resolved, and therefore a patent was never issued. The public was not aware of this issue, so the Comstock Lode was never included in additional patent applications for surrounding lands. It was discovered by Robert Calder in 2009 that this property was still owned by the United States and managed by BLM and he subsequently staked claim to the land (CMC278317). After Mr. Calder brought the mine site to BLM's attention, a cadastral survey and a cultural resource assessment of the claim area were soon initiated.

1.3 PURPOSE AND NEED

The purpose of the action is to determine if surface operations for the Hopemore underground tourism and mining will have a significant impact on public lands. BLM has a multiple-use mission set forth in the Federal Land Policy and Management Act of 1976, which mandates that we manage public land resources for a variety of uses, of which mining federal mineral resources is one of them. The proposed action will be subject to surface operations and occupancy under the General Mining Law of 1872, per 43 CFR 3809 and 43 CFR 3715.

Per 30 USC Sec. 1602 (01/03/2012), The Congress declares that it is the continuing policy of the United States to promote an adequate and stable supply of materials necessary to maintain national security, economic well-being and industrial production with appropriate attention to a long-term balance between resource production, energy use, a healthy environment, natural resources conservation, and social needs. The Congress further declares that implementation of this policy requires that the President shall, through the Executive Office of the President, coordinate the responsible departments and agencies to, among other measures, 1) identify materials needs and assist in the pursuit of measures that would assure the availability of materials critical to commerce, the economy, and national security and 2) encourage Federal agencies to facilitate availability and development of domestic resources to meet critical materials needs.

1.4 DECISION TO BE MADE

BLM will analyze the proposed Plan of Operations for the Hopemore Mine to determine the following:

1. Will the proposed action result in significant impacts that would warrant preparation of an Environmental Impact Statement?
2. If the proposed action cause unnecessary or undue degradation, what actions will be required of the operator to mitigate this?
3. In addition, BLM needs to analyze the proposed occupancy, in order to understand if requirements under 43 CFR 3715 will be met.

Results and any mitigation developed through this environmental assessment and resulting decision document will be forwarded to the CDRMS for inclusion into their permitting process. The BLM will require mitigation of probable impacts to a level that prevents unnecessary or undue degradation of the public lands and is consistent with performance standards outlined in 43 CFR 3809.420.

Decisions regarding the approval or non-approval of the Plan of Operations submittal and concurrence or non-concurrence of the occupancy request will be addressed separately from this Environmental Assessment.

1.5 PLAN CONFORMANCE REVIEW

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Royal Gorge Resource Area Resource Management Plan

Date Approved: May 13th, 1996

Decision Number/Page: 1-40 and 1-41/2-1-8

Decision Language: 1-40: Areas will be open to mineral entry and available for mineral materials development: administered under existing regulations; limited by closure if necessary; and special mitigation will be developed to protect values on a case-by-case basis.

1-41: Areas will be open to mineral entry and available for mineral materials development under standard mineral operating practices.

In January 1997, the Colorado State Office of the BLM approved the Standards for Public Land Health and amended all RMPs in the State. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands.

Standard 1: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes.

Standard 2: Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods.

Standard 3: Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential.

Standard 4: Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Standard 5: The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado.

Because standards exist for each of these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in Chapter 3 of this document.

1.6 SCOPING, PUBLIC INVOLVEMENT AND ISSUES

NEPA regulations (40 CFR §1500-1508) require that the BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to

allow public participation to identify issues, concerns, and potential impacts that require detailed analysis.

Persons/Public/Agencies Consulted: Scoping, by posting this project on the Royal Gorge Field Office NEPA website and submitting a public notice to the local Leadville paper, were the primary mechanisms used by the BLM to initially identify issues.

Issues Identified: No issues were identified during public scoping.

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The purpose of this chapter is to provide information on the Proposed Action and Alternatives. Alternatives considered but not analyzed in detail are also discussed.

2.2 ALTERNATIVES ANALYZED IN DETAIL

2.2.1 Proposed Action

The Hopemore mine is an underground mine located east of Leadville, Colorado, see Figure 1. The operator intends to operate the mine for both providing public tours and mining of gold, silver, lead, copper, iron, and zinc ores. The operations are proposed for a 9.9 acre area having an existing surface disturbance of 1.9 acres. A large portion of this operation occurs on BLM surface, however, some of the operations are also located on patented mining claims owned by Mr. Calder (Figures 2 and 3).

Photo 1: Overview of mine site, existing buildings

Geology

The Hopemore Shaft is located between the Mosquito Range to the east and the Sawatch Range to the west in the Southern Rocky Mountain province. This province has a range in elevation from 6,000 feet to over 14,000 feet, and encompasses part of the Rio Grande Rift System. Regionally, rock types vary markedly from Precambrian igneous and metamorphic stratigraphy to Paleozoic sedimentary stratigraphy, Tertiary volcanic and intrusive rocks, and alluvial deposits. The Leadville Mining District is comprised of highly faulted Paleozoic shelf carbonate rocks, intruded with Tertiary quartz monzonite porphyries, on the east side of the Arkansas River graben. The deposits in this district include precious and base metal massive sulfide veins, carbonate-hosted deposits, near-surface oxidized deposits, gold-bearing magnetite skarns, and gold-rich veins. The Hopemore shaft intersects the Ibex No. 4 vein where valuable sulfide, carbonate, and siliceous ores are found in magnetite-skarn replacement bodies in the Leadville Limestone. Irregular magnetite-serpentine bodies surround the skarn deposits, but do not produce a significant amount of ore to be valuable. The table included in Appendix A highlights the probable ore minerals in the Hopemore mine. The operator intends to mine the porphyry deposits. Due to the intrusive nature of the porphyries, the other known deposits will also be encountered during mining operations.

Site Design & Development

The Hopemore mine is an underground mine with two portals already in existence one on the 10.5 acre unpatented Comstock Lode claim (Hopemore shaft) and the other on the 9.85 acre patented

Robert Burns claim (Hunter shaft). The Plan of Operations is for a 9.9 acre area with an existing surface disturbance of 1.9 acres. No additional area will be disturbed at the surface. The proposed surface area slopes at 3% grade or less. There will be no stockpiles of topsoil for later reclamation, as alternative topsoil will be used because topsoil is less than 2 inches thick and is not suitable for salvaging or storage. In addition, topsoil was not salvaged prior to construction of the existing structures.

Current surface structures are shown on Figure 4 and include both facilities and existing surface development: hoist room, shop building, water tank storage building, Hopemore and Hunter Shafts head frames, mine office, parking lot, viewing stand, shared telephone/electric utility poles, septic system or port-a-lets, stockpile storage area, culverts, best management erosion control structures (CDRMS app pg43-45), and an 18-foot wide access road from County Road 1. All existing structures will be utilized in the proposed plan of operations and no new structures are proposed at this time.

The ATF permit is being submitted for explosives storage and use on site. Explosives will be stored in accordance with MSHA and ATF regulations in an area remote from the general public. The magazine will be locked and accessible to designated trained personnel only. A stormwater management plan has been drafted (Appendix A) in compliance with CDPHE regulations. The existing stockpile storage area is not lined. The base is made of clay and runoff from the pad is directed down a ditch into a sediment pond.

Mine Plan

The Hopemore Shaft will be operated by Robert Calder of Lockland, LLC as a tour mine and active mining operation beginning in 2014. Commodities to be mined include gold, silver, lead, copper, iron, and zinc ores. The Hopemore Shaft on the Comstock Lode unpatented claim will be the primary entrance, with the Hunter shaft on the Robert Burns patented claim acting as an escape route and a secondary portal for ore transport . Both vein type and bedded replacement type ores will be mined. The depth of the active mining is over 500 feet deep and will occur on several levels, as seen on Figures 5-1 and 5-2.

Photo 2: Underground workings

Operations will proceed at an estimated rate of 40 to 80 tons of production per day. The ore will be removed from the mine using ore carts and stored on the existing storage pad until being moved off site for processing. The maximum amount of ore to be stored at any one time is estimated as 300 tons or less. The maximum storage time on the surface will not exceed 60 days , however the goal is to remove ore within 72 hours. Mine rock that has low economic value will remain underground and be moved to a previously mined out area. If acid or toxic material is identified during mining, the material will be isolated from water to mitigate the possibility of offsite impacts to surface and groundwater resources. Isolation may include covering the material with geosynthetic materials or constructing a roof over the storage area. The foundation may consist of a geosynthetic liners or an impermeable ore storage pad.

Material will be transported from the site by one to four 20-ton trucks at a frequency of no more than 4 return trips per day. Trucks will be covered and speed limits on site will be limited to 15 mph in an effort to mitigate dust generation. The ore will be taken 0.3 miles to the main road and then on to the Leadville Mill, owned and operated by Union Milling LLC located at 13815 Highway 24, Leadville, Lake Couty, Colorado to be processed. The access route is the only access and therefore will be used by the public as well. Significant signage and additional requirements will be mandated by MSHA.

Equiment used on the surface may include 20-ton dump trucks, loader, field support trucks, and a backup generator. In addition, a water truck will be used to periodically spray roads. Underground equipment consists of ventilation and electrical system, jack legs, trackless loader, ore bins, and core drills. The direction of mining is dynamic and may change as the deposit changes. The general configuration of the ore bodies in the Breece Hill area as described in records of past production indicates relatively small ore bodies of 3' to 20' thick. Possibly occurring in strikes of 200'. Exploration via core sampling will be conducted on occasion to clarify the mining direction and if necessary modify mining plans.

All mining at this time will take place from underground workings. 5' x 7' tunnels will be mined using compressed air operating equipment. This type of mining equipment has been in use for many years. Rock drilling with jack-legs, mucking with 12B rail muckers and air powered slushers.

Photo 3: Hoist house

Some exploration will be done from the surface and within the 9.9 acre area, to coincide with underground activities. Exploration activities will be conducted where 50 lb. samples or less will be sent to a laboratory for assay purposes. The samples will be obtained from areas to define faults, joints, mineralogy and potential areas to develop the mine operation. Only light truck mounted equipment is necessary and drill holes will be plugged in accordance with Colorado State regulations and site reclamation completed as soon as practical after completion of drilling (see Reclamation Plan below). Final reclamation of an existing drill site will be completed before starting work from a future drill site.

Quality Assurance Plan:

Monitoring by the mine manager or his designated representative will include checking site security (gates and storage units), stormwater BMP's for functionality and design, potential spills of liquids and solids, posted signs, fire extinguishers, hoist maintenance, and housekeeping practices.

All areas of the mine will be monitored daily through visual observations. Monitoring will be recorded weekly by the mine manager or designated responsible employee. The following items will be included in the monitoring protocol:

- Dust conditions
- Possible deleterious material
- Stormwater runoff or drainage problems or changes
- Stormwater BMPs in place and in good repair
- Status of ore storage pad (ore currently stored, how long stored, seepage from pad)
- Equipment leaks
- Noticeable spills/staining, how cleaned up (if applicable)
- Petroleum products stored appropriately and in good condition
- Any other environmental changes on property

Any ore could possibly have sulfides mixed in the rock (see Appendix A). A rock characterization and handling plan is required per 43 CFR 3809.401. Emmons, et al., 1927 provides historical chemical data on the geologic materials. During the mining operations,chemical data will be obtained from the mill to assess and revise the rock characterization and handling plan regularly. The mine is dry so contact with water will be limited to durations of exposure while stockpiled at the surface. Stockpiles will be removed to the mill site within a maximum of 60 days, as a method to prevent exposure and effects of potentially toxic or deleterious materials.

If a change occurs such as ore, rock types will be updated along with composition assays from milled ore. This information will be continually reviewed during operations, to minimize potential negative impacts.

Interim Management Plan:

Operations of the Hopemore mine is limited by the seasons. Therefore, the mine may not be in operation during snowy months (November through April each year). The following procedures will be followed during this potential seasonal closure, as well as any unexpected closures (BLM and other applicable agencies will be notified during times of extended cessation).

When the mine is not operating, the mine, office buildings and shafts will be locked. Petroleum products used on site will be placed in storage or removed from the site. If run of mine rock remains on site, the storage pile will be covered with geosynthetic material. As necessary, stormwater BMP's will be repaired. Monitoring will continue to be conducted by the mine manager or designated representative. During periods of inactivity or when the site is inaccessible due to snow cover the site will be inspected twice a year, at a minimum, to maintain equipment, security, and reclamation.

Spill Contingency Plan:

There are to be no bulk chemicals stored at the mine. Incidental chemical usage will be limited to household products and stored appropriately in a metal cabinet.

Small quantities of petroleum products, fuel and oil will be stored at a designated area on the mine site. Storage of petroleum hydrocarbons in excess of 300 gallons will not be stored on site.

Hydrocarbons in excess of 55 gallons will be placed in secondary containment structures. Additional bulk hazardous substances will not be stored on site. Small quantities of paint, solvents, and lubricants will be stored in a locked storage unit. Drip pans will be used as necessary to contain liquids. A spill kit will be available in the locked chemical storage unit. In the event of a chemical or oil/gas spill, the area will be remediated. Spills resulting in greater than incidental usage amounts will result in notification to the appropriate regulatory agencies, including the BLM.

Reclamation Plan

The disturbed areas within the 9.9 acre permit area will be reclaimed to wildlife habitat upon mine closure in 2035. Reclamation will involve the following:

- Removal of trash, debris, machinery, utilities, and buildings
- Grading to blend with surrounding topography
- Construct a standard CDRMS closure utilizing backfill and gates on the Hopemore and Hunter shafts
- Storm water control installed to convey water around or through disturbed areas to minimize on and off site erosion and sedimentation impacts
- Scarify disturbed areas including the access road
- No topsoil will be stockpiled on site, so an alternative growth medium will be used instead of topsoil
- Place suitable alternative growth material on disturbed areas
- The recommended (as approved by the Natural Resource Conservation Service) seed mix is:
    - 4.5 pounds live seed (PLS) per acre of Arizona Fescue
    - 3.8 PLS per acre Mountain Brom
    - 4 PLS per acre Prairie Junegrass
    - 6.4 PLS per acre Western Wheatgrass
- Seed at a rate of 19lbs/acre using drill seeding methods
- Apply weed-free mulch (2 ton straw/acre) and fertilize, in accordance with industry standards
- After reclamation is completed, the site will be placed under a monitoring program to identify areas requiring sign repair, erosion repair, control noxious weeds, and repairing other reclamation failures. Monitoring will be conducted by the mine manager or designated representative.

Post closure management/monitoring plan:

- Stormwater controls will be implemented and maintained during reclamation and post-closure until vegetation is re-established.

- The first year after completing reclamation will include two monitoring inspections (late spring and mid-fall).

- Reclamation will be monitored annually for the next four years.

- Reclaimed areas will be repaired and reseeded as necessary.

- Release of the reclamation bond will be sought during the 5th year after final reclamation was initiated and is determined to be complete.

List of Federal, State, and Local Coordination

Federal Coordination

- MSHA – Identification Number (in process)
- ATF – Blasting Permit (in process)
- BLM, Royal Gorge Field Office – Approval of Plan of Operations (pending)
- BLM, Royal Gorge Field Office – Concurrence of Occupancy request (pending)

State of Colorado Coordination

- CDRMS – 110(2)Hard Rock/Metal Mining Reclamation Permit #M-2013-026 (Pending)
- CDPHE Heavy and Light Industrial Activity, Metal Miningand Recycling Industry Stormwater Discharge permit – Certification received, #COR-04-0275
- CDPHE Air Quality – Operator has letter stating the mine facility is exempt from air permitting requirements
- CDPHE Air Quality – Ore haulage APENs (in process)
- Colorado Division of Wildlife Consultation
- State Historic Preservation Office Consultation
- Colorado Department of Transportation – County approved road access permit

Lake County Coordination

- Conditional Use Permit – Approved December 2, 1987
- Parkville Water District Consultation
- Noxious Weed Management Plan
- Building Permit
- Certificate of Occupancy
- County Septic System Permit

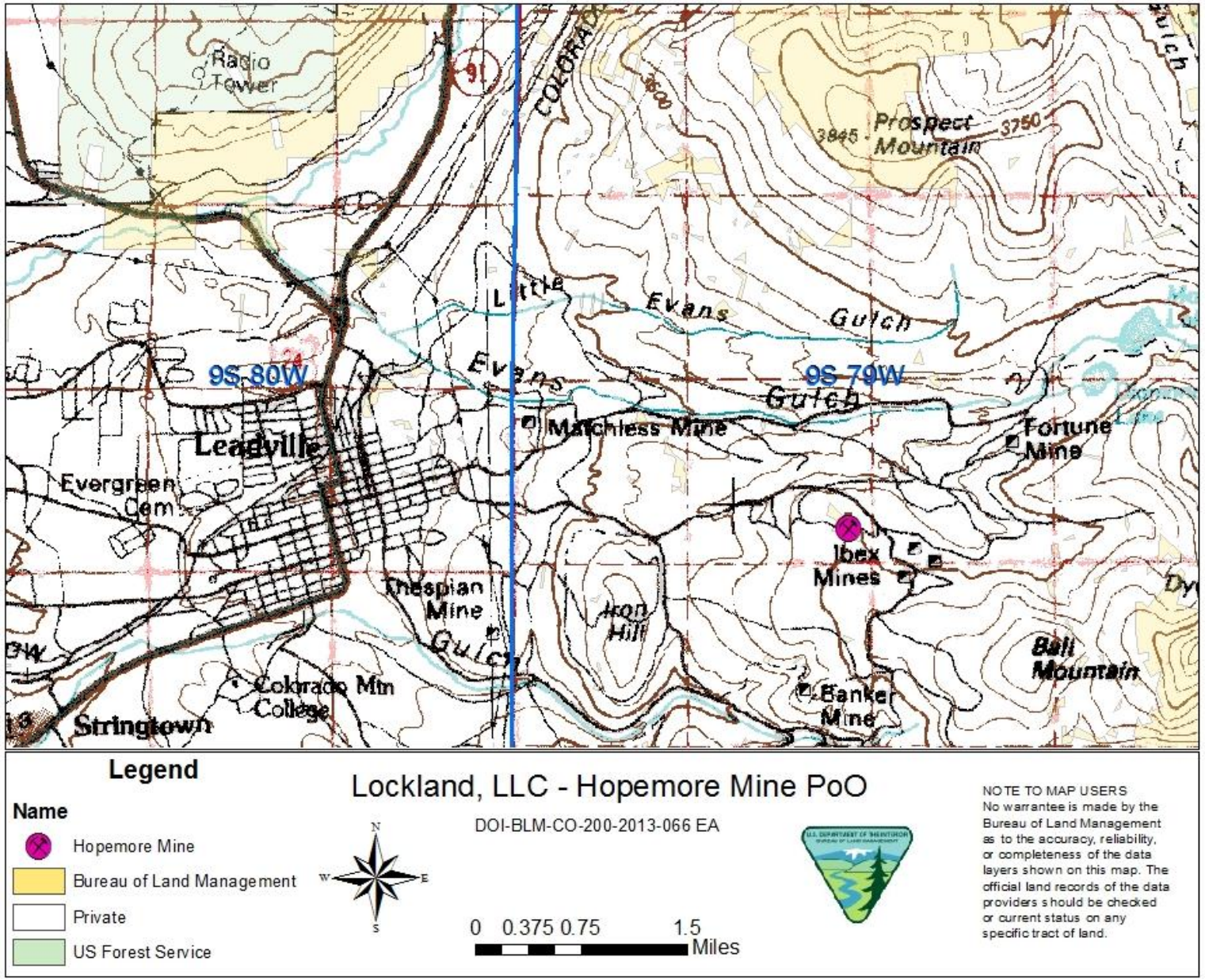


Figure 1 Location map.

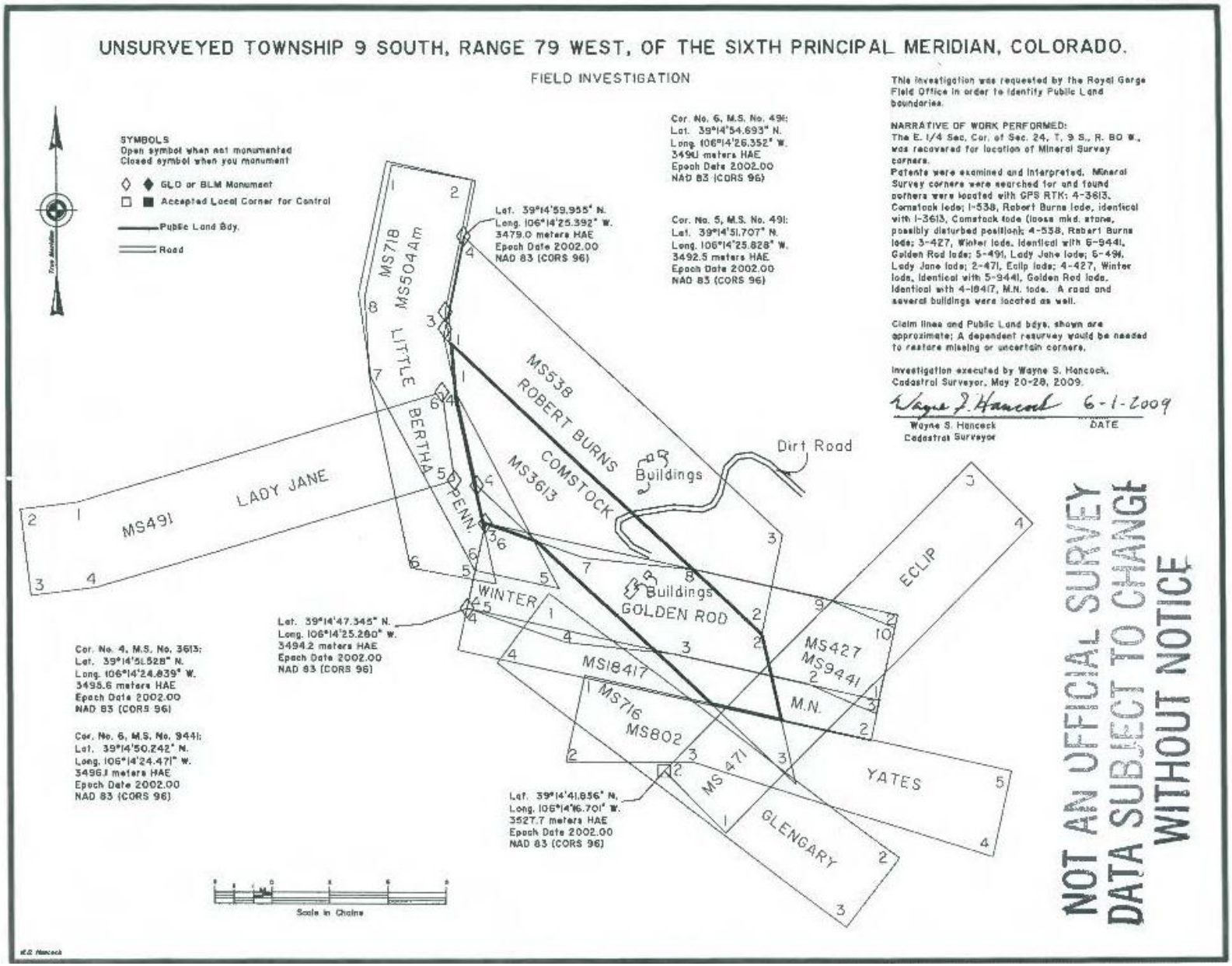


Figure 2 Layout of patented claims, as related to the unpatented Comstock Lode.

Figure 3 Yellow highlighted claim, Comstock Lode.

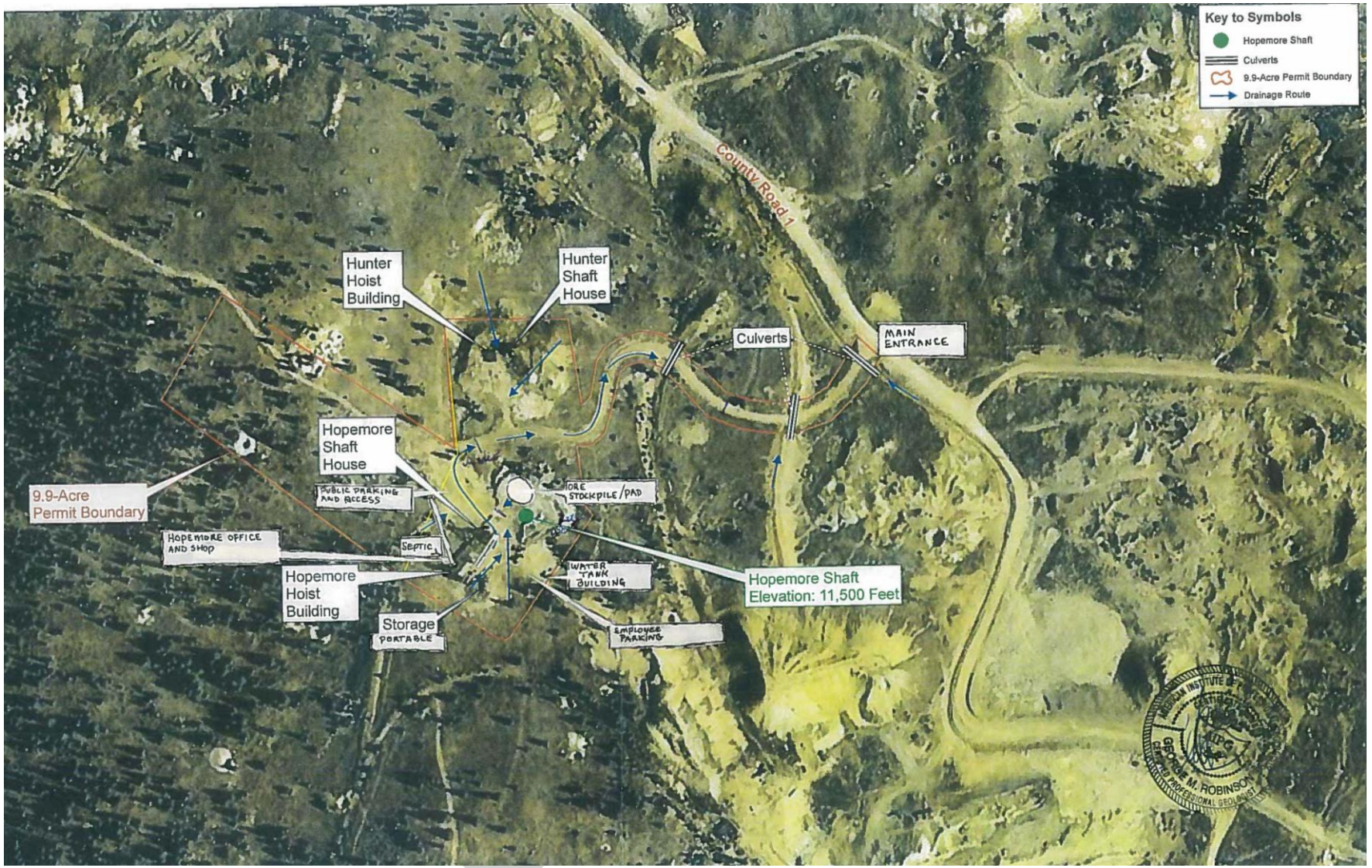
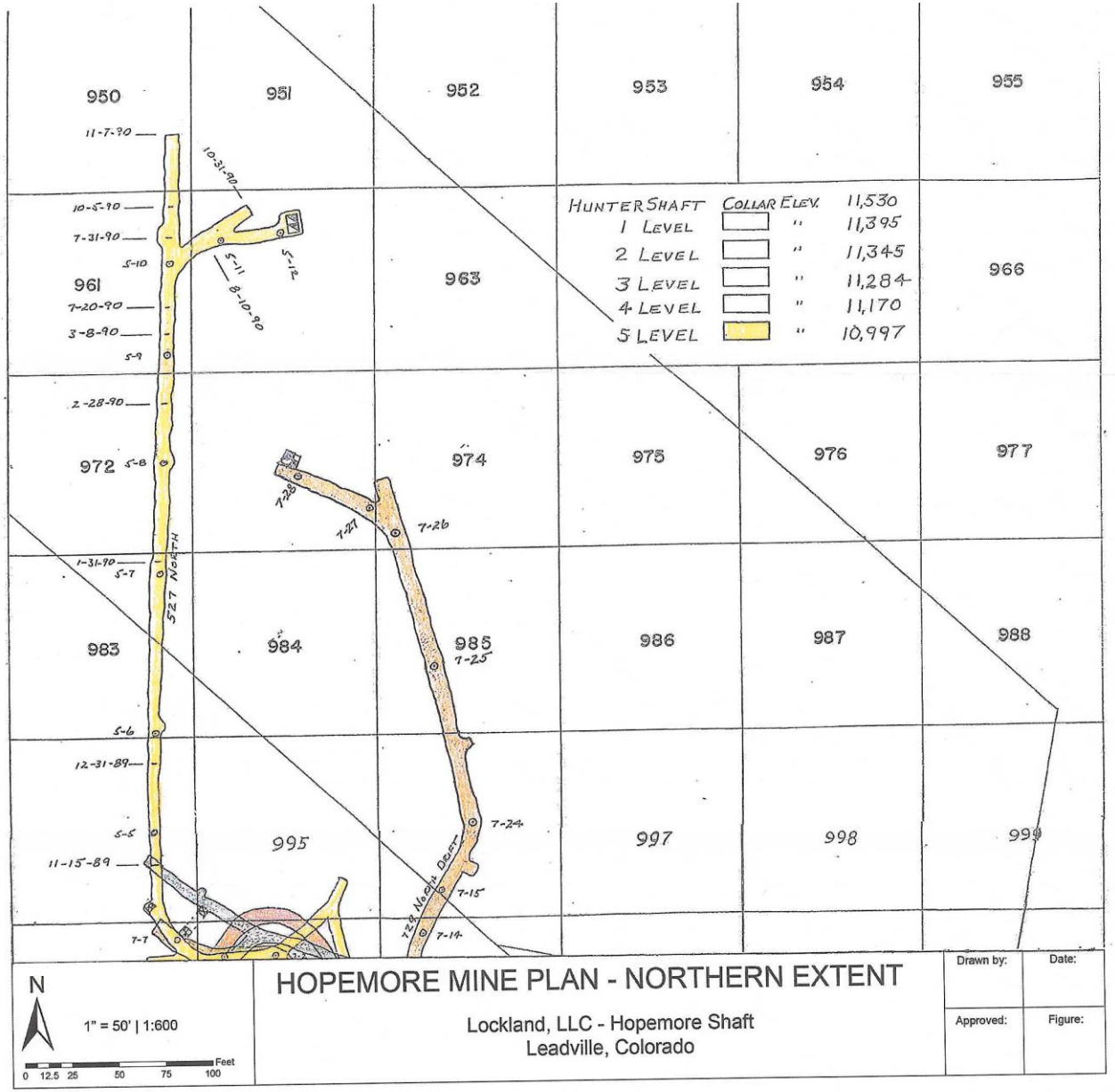


Figure 4 Mine plan map.



NOTES:

Figure 5.1 Underground workings, Levels 1-5

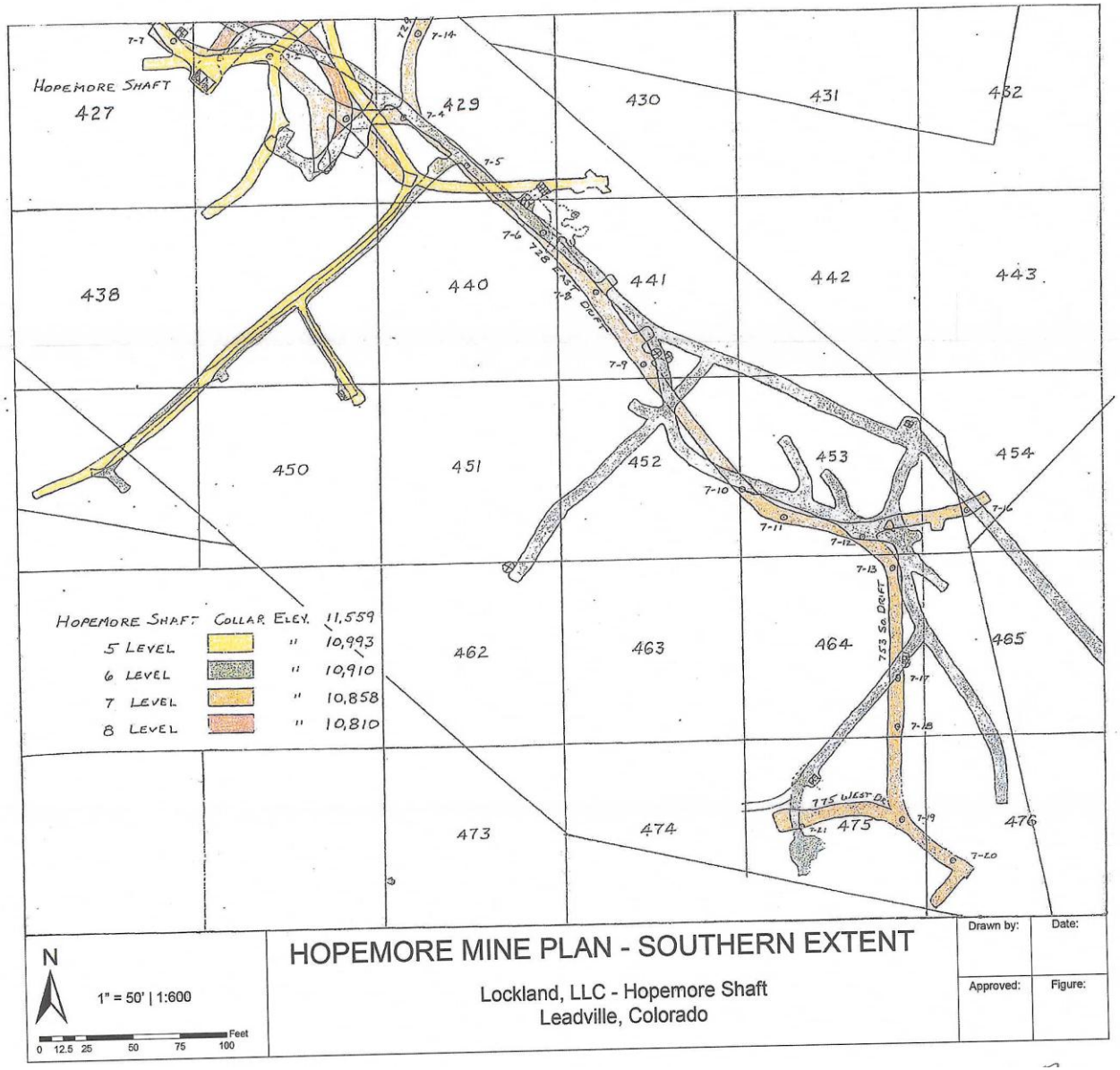


Figure 5.2 Underground workings, levels 5-8

2.2.2 No Action Alternative

Under the General Mining Law of 1872, the No Action Alternative cannot be considered by BLM for a proposal of an underground gold mining operation on an unpatented lode claim. Under this law BLM has no discretionary authority over the mining of locatable minerals and is limited to only imposing mitigation requirements to prevent unnecessary or undue degradation of the public lands in accordance with 43 CFR 3809 regulation.

2.2.3 Alternatives

None

2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

None.

CHAPTER 3 - AFFECTED ENVIRONMENT AND EFFECTS

3.1 INTRODUCTION

This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action and presents comparative analyses of the direct, indirect and cumulative effects on the affected environment stemming from the implementation of the actions under the Proposed Action and other alternatives analyzed.

3.1.1 Interdisciplinary Team Review

The following table is provided as a mechanism for resource staff review, to identify those resource values with issues or potential impacts from the proposed action and/or alternatives. Those resources identified in the table as impacted or potentially impacted will be brought forward for analysis.

Resource	Initial and date	Comment or Reason for Dismissal from Analysis
Air Quality *Ty Webb, Chad Meister, Melissa Hovey*	TW, 3/13/2014	No significant impact to air quality is foreseen.
Geology/Minerals *Stephanie Carter, Melissa Smeins*	SSC, 4/01/14	No significant impact to geology/minerals is anticipated. For description of geology, see Proposed Action and Appendix A. For further details on geology and deposits local to the site, refer to Emmons, et al., 1929.
Soils *John Smeins*	JS, 5/30/14	See section 3.2.3 (Soils)

Resource	Initial and date	Comment or Reason for Dismissal from Analysis
Water Quality Surface and Ground *John Smeins*	JS, 5/30/14	See Section 3.2.4 (Water)
Invasive Plants *John Lamman*	JL, 05/29/2014	See "Invasive Plants" section.
T&E and Sensitive Species *Matt Rustand*	MR, 3/11/2014	No surface disturbing activity, i.e. habitat loss, is to occur as a result of the proposed action. An increase in truck traffic (four loads per day) on an existing county road is an additive impact beyond the current use. Operations are to occur May through October or the snow free months of the year. Using the current setting as a reference, the impacts of the proposed action will be negligible.
Vegetation *Jeff Williams, Chris Cloninger, John Lamman*	JW 5/27/14	See Vegetation Section.
Wetlands and Riparian *Dave Gilbert*	DG 3/10/14	Reviewing the setting of the Proposed Action reveals the mine location is elevated on a large mountain ridge away from any perennial drainage. Wetland mapping layers show there are no perched wetlands near the footprint of the mine, or for quite some distance downslope. No additional surface disturbance is planned to affect offsite resources.
Wildlife Aquatic *Dave Gilbert*	DG 3/10/14	See also wetland and riparian comment. No aquatic wildlife habitat is present in the vicinity of this action.
Wildlife Terrestrial *Matt Rustand*	MR, 3/11/2014	No surface disturbing activity, i.e. habitat loss, is to occur as a result of the proposed action. An increase in truck traffic (four loads per day) on an existing county road is an additive impact beyond the current use. Operations are to occur May through October or the snow free months of the year. Using the current setting as a reference, the impacts of the proposed action will be negligible.
Migratory Birds *Matt Rustand*	MR, 3/11/2014	No surface disturbing activity, i.e. habitat loss, is to occur as a result of the proposed action. An increase in truck traffic (four loads per day) on an existing county road is an additive impact beyond the current use. Operations are to occur May through October or the snow free months of the year. Using the current setting as a reference, the impacts of the proposed action will be negligible.
Cultural Resources *Monica Weimer, Michael Troyer*	MMW, 3/10/14	A non-eligible site (5LK2049) is located in the APE [see Report CR-RG-11-81 (P)]. Because no additional surface disturbance will occur, no additional inventory is required, and no historic properties will be affected.
Native American Religious Concerns *Monica Weimer, Michael Troyer*	MMW, 3/10/14	No possible traditional cultural properties were located during the cultural resources inventory (see above). There is no other known evidence that suggests the project area holds special significance for Native Americans.
Economics *Dave Epstein, Martin Weimer*	mw, 5/28/14	The proposal would have positive impacts to the operator as a result of mine production and tourist trade and could have a smaller indirect but positive impact to Leadville and the area through tourism and a potential source of employment.
Paleontology *Melissa Smeins, Stephanie Carter*	SSC, 5/29/14	The geology in this area is not likely to contain recognizable paleontological resources and therefore this project will not have an adverse impact.

Resource	Initial and date	Comment or Reason for Dismissal from Analysis
Visual Resources *Kalem Lenard*	KL, 5/19/2014	The project area has a high volume of modifications that contrast with the natural environment. The project would not greatly add or detract from the visual resources in the area and therefore there would no impacts.
Environmental Justice *Martin Weimer*	mw, 5/28/14	The proposed action affects areas that are rural in nature. The land in this area was historically developed for hardrock mining of gold and silver. There are no minority or low-income populations in or near the project area. As such, the proposal will not have a disproportionately high or adverse environmental effect on minority or low-income populations.
Wastes Hazardous or Solid *Stephanie Carter*	SSC, 4/01/14	Based on information provided, no significant impact resulting from wastes is anticipated.
Recreation *Kalem Lenard*	KL, 5/19/2014	The parcel does not have any public recreation, outside of the mine tours, and therefore there would be impacts to this resource.
Farmlands Prime and Unique *Jeff Williams, Chris Cloninger, John Lamman*	JW 5/27/14	Not present
Lands and Realty *Greg Valladares*	GDV 05/28/14	Not present.
Wilderness, WSAs, ACECs, Wild & Scenic Rivers *Kalem Lenard*	KL, 5/19/2014	Not present.
Wilderness Characteristics *Kalem Lenard*	KL, 5/19/2014	Not present.
Range Management *Jeff Williams, Chris Cloninger, John Lamman*	JW 5/27/14	Not present.
Forest Management *Ken Reed*	KR, 3/18/14	No trees may be cut or pruned without BLM authorization. No impacts to forest management or forest health.
Cadastral Survey *Jeff Covington*	JC, 5/28/14	A field investigation occurred in 2009 to verify the location of the area and the surrounding mines in relation to public lands. BLM records indicate that these mineral claims are original surveys and have not been resurveyed BLM records also indicate that the boundaries have not been marked.
Noise *Martin Weimer*	mw, 5/28/14	This action will not result in any significant impacts due to noise.
Law Enforcement *Steve Cunningham*	MW for SC, 5/28/14	There are no law enforcement issues associated with this action.

The affected resources brought forward for analysis include:

- Soils
- Water Quality
- Invasive Plants
- Vegetation

3.2 PHYSICAL RESOURCES

3.2.1 SOILS (includes a finding on standard 1)

Affected Environment: The site lies at an elevation of approximately 11,500' with shallow, poorly developed soils. Most activities will occur on previously disturbed areas where the soils have been severely altered and no new disturbance is proposed.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: No new soil disturbance is being proposed in connection with this action; however, previously disturbed soils would be reworked and the site would eventually be reclaimed. The eventual reclamation of the 1.9 acres would ultimately leave the soils on the site in better condition than they currently are. Offsite soils impacts are mitigated through the Stormwater Management Plan submitted by the proponent that limits the amount of runoff and sedimentation leaving the site.

Protective/Mitigation Measures: No additional mitigation measures are necessary to protect soil resources beyond what is contained in the Proposed Action and Stormwater Management Plan.

Cumulative Impacts: On a sixth level watershed scale, there have been substantial impacts to area soils since the settlement of the area. Most of this impact is the result of historic mining in the area in the late 1800's. When combined with other activities in the area, the Proposed Action would not add measurable new impacts to area soils in the long term that would lead to major impacts.

No Action Alternative

Direct and Indirect Impacts: Not Applicable

Protective/Mitigation Measures: Not Applicable

Finding on the Public Land Health Standard for Upland Soils: No formal Land Health Assessment has been conducted on the site; however, soils on the site are already heavily disturbed and would not meet standards. In the long term after reclamation is complete sils may begin to meet standards.

3.2.2 WATER (SURFACE AND GROUNDWATER, FLOODPLAINS) (includes a finding on standard 5)

Affected Environment: The site lies on a ridge top tributary to Evans Gulch and ultimately the Arkansas River. No surface water is present and groundwater has not been intercepted by mine workings to date.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The Proposed Action would bring subsurface rocks to the surface where they would be stockpiled for a short amount of time before being hauled offsite for milling. Currently, the site is in a disturbed condition from previous mining activities and no new surface disturbance is expected. From a water stand point, three possible issues could occur with the proposal. First, stormwater runoff from the area could carry sediment and other pollutants offsite to downstream waters. The second possible issue is the potential for the mine rock to react with the surroundings to produce acid or other deleterious products. Finally, there is a possibility of encountering groundwater in the operations.

To address the first issue, the proponent has developed a Stormwater Management Plan for the site that addresses surface runoff from the site during storm events and snowmelt periods. This plan contains mitigations that would limit the amount of runoff and pollutants that would leave the site.

To address the second issue, preliminary geochemical characterization indicates that the material that would be produced would not be reactive; however, the proponent has committed to not store mine rock on the site for more than 60 days in an effort to limit the amount of exposure that takes place. In addition, if it is discovered that there is potential for the formation of deleterious materials, the proponent has committed to isolating them by lining the stockpile pad.

To address the final issue, the proponent states that they would obtain a permit from the Colorado Department of Public Health and Environment (CDPHE). More permits would be needed then just from CDPHE if groundwater is encountered. At a minimum, a NPDES permit from CDPHE would be required for any pumping to dewater the mine and the proponent would need to obtain water rights for this activity. In addition, the potential for acid forming rock inside the mine would become possible. This could be very difficult to deal with and would change the overall project.

Overall, with mitigations, the project would have minimal impacts on water in the area.

Protective/Mitigation Measures:

- The proposed action states that chemical data will be obtained from the mill to assess and revise the rock characterization and handling plan regularly. If it is determined that acid or other toxic material generation could be produced by the mine rock, the storage pad and associated runoff must be isolated so as to not enter surface or ground water. This data needs to be provided to the BLM on an annual basis.

- We generally don't want to use rye or barley straw for mulch types. Also, it would be advantageous if it was cheat grass free.
- Post-closure, twice a year monitoring may not be enough, especially in the first year. If you inspect in late spring and mid fall you are essentially missing most of the growing/runoff season. I would recommend at least monthly while the area is snow free.
- What is the measure of successful reclamation? I would recommend we hold them to approximating an undisturbed reference site as far as species diversity, cover, etc.
- If groundwater is encountered during mining operations, coordination with BLM and applicable permits will need to be initiated. If encountered groundwater happens to discharge from the underground workings, immediate notification to BLM is required. The process of a mine plan modification, a bond re-assessment and other agency permitting would be started immediately.

Cumulative Impacts: On a sixth level watershed scale, there have been substantial impacts to area water since the settlement of the area. Most of this impact is the result of historic mining in the area in the late 1800's and early 1900's. Due to the dry location of the site, little impact to water would be expected. When combined with other activities in the area, the Proposed Action with mitigation would not add measurable new impacts to area waters in the long term that would lead to major impacts.

No Action Alternative

Direct and Indirect Impacts: Not Applicable

Protective/Mitigation Measures: Not Applicable

Finding on the Public Land Health Standard for Water Quality: No formal Land Health Assessment has been conducted for the area. Some area waters are on the Colorado 303(d) list as being water quality impaired; however Evans Gulch is not on the list. The Proposed Action, with mitigation, would not be expected to cause Evans Gulch to not meet State water quality standards.

3.3 BIOLOGICAL RESOURCES

3.3.1 INVASIVE PLANTS*

Affected Environment: Invasive plants are common in the area due to historical agricultural practices. The native plant community has been altered due to the historical practices in the area. The ecological sites that make up the project site are prone to a variety of weed infestations if soil surface disturbance occurs. Invasive plants within 10 miles of the project area include but are not limited to: yellow toadflax, oxeye daisy, scentless chamomile, leafy spurge, houndstongue, hoary cress, common tansy, and Canada thistle,

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Due to the long-term exposure of the project area to historical practices, expected impacts are thought to be minor.

Protective/Mitigation Measures: Areas disturbed by project implementation will be monitored for the presence of weeds on the Colorado State Noxious Weed list. Monitoring is required for the life of the project and for three years following project completion. Identified noxious weeds in disturbed areas will be treated by project proponent.

Cumulative Impacts: None.

No Action Alternative

Direct and Indirect Impacts: None.

Protective/Mitigation Measures: None.

*Invasive plants are plants that are not part of (if exotic), or are a minor component of (if native), the original plant community or communities that have the potential to become a dominant or co-dominant species on the site if their future establishment and growth are not actively controlled by management interventions, or are classified as exotic or noxious plants under state or federal law. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants.

3.3.2 VEGETATION (includes a finding on standard 3)

Affected Environment: The analysis area takes place within a subalpine ecosystem. Precipitation occurs primarily as snow, but wet thunderstorms are frequent during the short summer months. Average annual precipitation varies between 16 - 25 inches depending on the year. The average annual temperature for this area is approximately 30 degrees F. Winds are typical in the area year round and can be very strong at times. The growing season is very limited at this elevation and consists of 40 to 45 days, typically July 1 through August 15.

The vegetation on this site is a mixture of spruce/fir and lodge pole pine. The understory typically consists of Thurber fescue, native blue grasses, Parry oatgrass, sedges, perennial forbs, sage brush, snowberry and cinquefoil.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Less than 2 acres of the proposed action directly impacts vegetation in the area. In this area vegetation is void where mining activities occur. The mining Plan of Operation contains a reclamation plan that adequately addresses the impacts to vegetation in the long term.

Protective/Mitigation Measures: None.

Cumulative Impacts: None anticipated.

No Action Alternative

Direct and Indirect Impacts: None.

Protective/Mitigation Measures: None anticipated.

Finding on the Public Land Health Standard for Plant and Animal Communities: A formal health assessment has not been conducted in this area, however, based on observations it would appear that upland vegetative standards are being met on a landscape basis.

3.6 CUMULATIVE IMPACTS SUMMARY

Most of the existing, surficial impacts are the result of historic mining in the area, dating back to the late 1800's. When combined with other activities in the area, the Proposed Action would not add measurable new negative cumulative impacts to natural resources in the area.

The proposal would have positive impacts to both the local and regional economies, as a result of mine production and the tourist trade.

CHAPTER 4 - CONSULTATION AND COORDINATION

4.1 LIST OF PREPARERS AND PARTICIPANTS

Please see Interdisciplinary Team Review list for BLM Participants

4.2 TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED

Division of Reclamation, Mining and Safety

CHAPTER 5 – REFERENCES

Bureau of Land Management. 2001. 43 CFR 3809 regulations.

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